SUPREME COURT, U. S.

SUPREME COURT, U. S.
FILED
NOV 27 1973
MICHAEL RODAK, JR., CLERK

73-833

IN THE

Supreme Court of the United States

October Term, 1973
No.------

HAROLD W. DOYLE,

Petitioner

vs.

COMMISSIONER OF PATENTS,

Respondent

PETITION FOR WRIT OF CERTIORARI, TO THE UNITED STATES COURT OF CUSTOMS AND PATENT APPEALS

Fowler, Knobbe & Martens
James B. Bear
Don W. Martens
500 South Main St.
Orange, California 92668

Attorneys for Petitioner

Of Counsel:
Bruce D. Jimerson

SUBJECT INDEX

	Page
Petition	i
Opinion Below	1
Jurisdiction	2
Questions Presented	2
Constitutional and Statutory Provisions Involved	3
Statement of The Case	4
Reasons for Granting The Writ	7
I. The Decision Below Conflicts With Prior Decisions of This Court That the Adequacy of a Patent Application Disclosure is a Question of Fact	7
II. The Decision Below is in Conflict With the Decisions of Other Circuit Courts of Appeals as to Whether Sufficiency of Disclosure is a Question of Law or Fact	9
III. Due Process Requires That a Question of Fact Not Be Decided Contrary to the Only Evidence of Record	10

IV. The Patent Office Must Apply to a Reissue Application the Same Standards For Measuring Sufficiency of Disclosure as it Applied to the Original Application... 13

Conclusion..... 15

INDEX TO APPENDIX

Decision and Opinion of the Court of Customs and Patent Appeals..... 1

Decision and Opinion of the Patent Office Board of Appeals..... 23

Affidavit of Owens..... 35

Affidavit of Steel..... 37

Affidavit of Burger..... 47

Excerpts From Depositions of Mantey and Sutton (In Civil Action Number 69-1763-AAH)..... 48

CITATIONS

CASES:

A.B. Dick Co. v. Barnett, 288 Fed. 799 (2nd Cir. 1923)... 9

Baltimore & O.R. Co. v. United States, 264 U.S. 258 (1924).... 11

Battin v. Taggert, 58 (17 How.) U.S. 74 (1854)..... 7,9

Brandstater, In re, 179 U.S.P.Q. 286 (CCPA 1973)..... 8

Brenner v. Manson, 383 U.S. 519 (1966)..... 2

Congress and Empire Spring Co. v. Edgar, 99 U.S. 645 (1879)... 12

Eastern Transp. Line v. Hope, 95 U.S. 297 (1877)..... 12

Gila Valley, G. & N.R. Co. v. Lyon, 203 U.S. 465 (1906)..... 12

Grant v. Raymond, 31 (6 Pet.) U.S. 218 (1832)..... 13

Hogg v. Emerson, 52 (11 How.) U.S. 587 (1850)..... 8

Minnesota Mining & Mfg. Co. v. Carborundum Co., 155 F.2d 746 (3rd Cir. 1946)..... 9

Morgan v. United States, 304 U.S. 1 (1938)..... 11

National Athletic Sup. Corp. v. Tone-O-Matic Products, Inc., 421 F.2d 407 (5th Cir. 1970)..... 10

Northern Pac. Ry. Co. v. Department of Public Works of Washington, 268 U.S. 39 (1925)..... 11

Ohio Bell Telephone Co. v. Public Utilities Commission, 301 U.S. 292 (1937)..... 11

Railroad Commission of California v. Pacific Gas & Electric Co., 302 U.S. 388 (1938)..... 11

Scott Paper Co. v. Marcalus Mfg. Co., 326 U.S. 249 (1945)..... 10

Tights, Inc. v. Stanley, 441 F.2d 336 (4th Cir. 1971)... 10

Texas & P.R. Co. v. Watson, 190 U.S. 287 (1903)..... 12

Watson v. Bersworth, 251 F.2d 898 (Ct. App. D.C. 1958)..... 9

Winans v. The N.Y. and Erie R. Co., 62 U.S. (21 How.) 88 (1859)..... 12

CONSTITUTION AND STATUTES:

Constitution of The United States Fifth Amendment..... 3

28 U.S.C. §1256..... 2

35 U.S.C. §102(b)..... 15

35 U.S.C. §112..... 3,4,9,10,12

35 U.S.C. §141..... 5

35 U.S.C. §251..... 3,13,14

IN THE
SUPREME COURT OF THE UNITED STATES

October Term, 1973
No. .....

HAROLD W. DOYLE,

Petitioner

vs.

COMMISSIONER OF PATENTS,

Respondent.

PETITION FOR WRIT OF CERTIORARI, TO THE UNITED STATES COURT OF CUSTOMS AND PATENT APPEALS.

Petitioner, Harold W. Doyle respectfully prays that a writ of certiorari issue to review the judgment and decision of the United States Court of Customs and Patent Appeals entered in this proceeding on August 30, 1973.

OPINION BELOW

The opinion and judgment of the Court of Customs and Patent Appeals is reported at 482 F.2d 1385, and appears in the Appendix hereto. The opinion of the Patent Office Board of Appeals, not yet reported, appears in the Appendix hereto.

JURISDICTION

The judgment of the Court of Customs and Patent Appeals was entered on August 30, 1973 and this petition for certiorari was filed within 90 days of that date. The jurisdiction of this Court is invoked under 28 U.S.C. §1256. Brenner v. Manson, 383 U.S. 519 (1966).

QUESTIONS PRESENTED

1. Whether the adequacy of disclosure of a patent application is a question of law or a question of fact.

2. Whether the fundamental right, guaranteed under the Fifth Amendment to the Constitution of the United States, to due process of law is denied by the Patent Office of the United States and the Court of Customs and Patent Appeals:

   (a) rejecting a patent application for inadequate disclosure based on facts judicially noticed by the Patent Office and said court, but neither specified nor known to applicant; and

   (b) rejecting a patent application for inadequate disclosure contrary to the only evidence before the Patent Office and the court.

3. Whether the Patent Office can apply a different standard for

adequacy of disclosure in an application to reissue a patent than it applied in the application for original patent sought to be reissued.

CONSTITUTIONAL AND STATUTORY PROVISIONS INVOLVED

The Fifth Amendment to the Constitution of the United States provides:

> "No person shall . . . be deprived of life, liberty, or property without due process of law.. . ."

35 U.S.C. (1964 Ed.) §112, par. 1, provides:

> "The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention."

35 U.S.C. (1964 Ed.) §251, provides:

> "Whenever any patent is, through error without any deceptive intention, deemed wholly or partly inoperative or invalid, by reason of a defective specification or drawing, or by reason of the patentee claiming

more or less than he had a right to claim in the patent, the Commissioner shall, on the surrender of such patent and the payment of the fee required by law, reissue the patent for the invention disclosed in the original patent, and in accordance with a new and amended application, for the unexpired part of the term of the original patent. No new matter shall be introduced into the application for reissue.. . .

The provisions of this title relating to applications for patent shall be applicable to applications for reissue of a patent.. . ."

STATEMENT OF THE CASE

The issue in this case is whether the petitioner is entitled to reissue a patent granted in 1968 on an apparatus and method for the grading of patterns. Petitioner's application for reissue was rejected by the Patent Office Examiner for failure to satisfy the requirements of the first paragraph of 35 U.S.C. §112, and that rejection was affirmed by the Patent Office Board of Appeals, and the Court of Customs and Patent Appeals. Each of those decisions was based upon a finding that the specification of the application does not teach the manner and process of making and using the invention, in such full, clear, concise, and exact terms as to enable

any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same. The Court of Customs and Patent Appeals had jurisdiction of this case under 35 U.S.C. §141.

During the prosecution of this patent application before the Patent Office Examiner, the petitioner, when faced with this rejection, submitted to the Patent Examiner evidence showing the level of ordinary skill in the art and the ability of persons of ordinary skill in the pertinent art to make and use the invention, utilizing only the description contained in the specification of the patent application. This evidence was of three distinct types: (1) excerpts from depositions taken of adverse witnesses in litigation then and now pending in the District Court for the Central District of California evidencing the level of ordinary skill in the art to which the application pertains; (2) affidavits of experts trained in the field to which the invention pertains, which affidavits are evidence directly showing the ability of those with ordinary skill in the art to practice the present invention through the teaching of the specification of the petitioner's patent application; and (3) an affidavit of a person, having less than ordinary skill in the art to which the invention pertains, swearing to the fact that the

affiant, using no significant information other than that which is presented in the patent application, has made and used the invention to which the application pertains. This evidence is reprinted in the Appendix hereto.

Even though faced with this substantial evidence directed precisely to the issue to be determined, the Patent Office Examiner as well as the Patent Office Board of Appeals and Court of Customs and Patent Appeals rejected each of petitioner's claims on the basis that the invention was not disclosed with sufficient clarity to enable persons skilled in the art to which it pertains to make and use the same. The Patent Office presented no evidence to justify this rejection, and neither the Patent Office nor the Court of Customs and Patent Appeals specified any facts on which it relied to support its finding.

The issues raised herein were raised below, the petitioner having asserted as an error before the Court of Customs and Patent Appeals and in its brief before that court that the Patent Office abused its discretion by refusing this patent application contrary to the only evidence of record, and by applying a different standard to this reissue application than to the original application.

REASONS FOR GRANTING THE WRIT

I. The Decision Below Conflicts With Prior Decisions of This Court That the Adequacy of a Patent Application Disclosure is a Question of Fact.

The procedure to be followed by the Patent Office in determining the sufficiency of disclosure is directly dependent upon a determination of whether that issue is a question of fact or law. If it is a question of law, the Patent Office can simply state that a disclosure is not sufficient without reference to evidence submitted by the applicant. On the other hand, if sufficiency of disclosure is a question of fact, as petitioner believes to be the case, the Patent Office is compelled in conformity with due process requirements to consider evidence from the petitioner showing that there is an adequate disclosure.

In Battin v. Taggert, 58 (17 How.) U.S. 74, 85 (1854) this Court considered the adequacy of a patent disclosure and held:

> "(T)he two instructions (of the trial court) above noticed, took from the jury, facts which it was their province to examine and determine. It was the right of the jury to determine from the facts in the case whether the specifications, including the

claim, were so precise as to enable any person skilled in the structure of machines, to make the one described." (Emphasis added).

See Hogg v. Emerson, 52 (11 How.) U.S. 587 (1850).

Relying on those decisions of this Court as holding that sufficiency of disclosure is a factual issue, the petitioner submitted the affidavits and deposition transcripts of experts which directly addressed the question of sufficiency of the disclosure. Not only the Patent Office Examiner and Board of Appeals, but also the Court of Customs and Patent Appeals disregarded this pertinent evidence of experts and found that the disclosure was insufficient, citing no supporting contrary evidence.

Although neither the Patent Office Board of Appeals nor the Court of Customs and Patent Appeals expressly stated in their opinions below that they were deciding the issue as a matter of law, their disregard of the only evidence on the issue compels the conclusion that it was decided as a matter of law. That conclusion is confirmed by a subsequent opinion of the Court of Customs and Patent Appeals, In re Brandstadter, Kienzle, and Sykes, ___ F.2d ___, 179 U.S.P.Q. 286 (CCPA 1973). In that case the court also considered the issue of sufficiency of disclosure of a patent application

under 35 U.S.C. §112. The court dismissed affidavits evidencing that the disclosure was sufficient, stating:

> "The affidavits submitted by appellants generally express the affiants' opinions on the ultimate legal question whether the specification is enabling." (Emphasis added). 179 U.S.P.Q. at 293.

Therefore, it is submitted that the Court of Customs and Patent Appeals has held in this case that sufficiency of disclosure under 35 U.S.C. §112 is a question of law, contrary to prior long-standing decisions of this Court.

II. The Decision Below is in Conflict With the Decisions of Other Circuit Courts of Appeals as to Whether Sufficiency of Disclosure is a Question of Law or Fact.

Irrespective of this Court's long-standing decision in Battin v. Taggert, supra, that sufficiency of disclosure in a patent application is a question of fact, the circuit courts of appeal are in conflict on the issue. Sufficiency of disclosure was found to be a question of law in Minnesota Mining & Mfg. Co. v. Carborundum Co., 155 F.2d 746 (3rd Cir. 1946) and Watson v. Bersworth, 251 F.2d 898 (Ct. App. D.C. 1958), cert. denied, 356 U.S. 972 (1958); but was found to be a question of fact in A. B. Dick Co. v. Barnett,

288 Fed. 799 (2nd Cir. 1923); National Athletic Sup. Corp. v. Tone-O-Matic Products, Inc., 421 F.2d 407 (5th Cir. 1970); and Tights, Inc v. Stanley, 441 F.2d 336 (4th Cir. 1971), cert. denied, 404 U.S. 852 (1971).

The Court of Customs and Patent Appeals in this case has aligned itself with those circuits considering it to be a question of law. Resolution by this Court of the obvious dichotomy among the various circuit courts of appeals and the Court of Customs and Patent Appeals is essential to provide the proper framework in which to determine the sufficiency of patent disclosures under 35 U.S.C. §112. This matter goes to the very core of the patent system in that the disclosure is what a patentee is giving to the public in return for the grant of the patent. Scott Paper Co. v. Marcalus Mfg. Co., 326 U.S. 249 (1945).

III. Due Process Requires That A Question of Fact Not Be Decided Contrary to the Only Evidence of Record.

As determination of the sufficiency of disclosure of a specification in a patent application is a question of fact under the decisions of this Court, the decision of the Court of Customs and Patent Appeals in this case effectively denies the petitioner his fundamental right to due process under the law in

accordance with the Fifth Amendment to the United States Constitution.

This Court has ruled that administrative bodies of the federal government must afford citizens the right to a full hearing on issues presented. Morgan v. United States, 304 U.S. 1 (1938). When issues are presented to administrative tribunals, the Fifth Amendment to the United States Constitution requires that these issues must be decided on the basis of evidence presented and may not be arbitrary or in contradiction to the evidence presented. Morgan v. United States, supra. Northern Pac. Ry. Co. v. Department of Public Works of Washington et al., 268 U.S. 39 (1925); Railroad Commission of California v. Pacific Gas & Electric Co., 302 U.S. 388 (1938). If issues are decided on the basis of judicial notice taken by an administrative tribunal, the facts so noticed must be placed in the record for proper inquiry by the individual whose property rights are being determined. Ohio Bell Telephone Co. v. Public Utilities Commission, 301 U.S. 292 (1937); Baltimore & O.R. Co. v. United States, 264 U.S. 258 (1924).

The depositions and affidavits going precisely to the ultimate fact to be determined are admissible as evidence, if the fact to be determined is a subject on which the triers of fact "are not as well able to judge for

themselves as is the witness.. . ." Eastern Transp. Line v. Hope, 95 U.S. 297, 298 (1877). Texas & P.R. Co. v. Watson, 190 U.S. 287 (1903) and Gila Valley, G. & N.R. Co. v. Lyon, 203 U.S. 465 (1906). Furthermore, this Court has held that expert testimony may be used as evidence as to the "state of the art" in patent and other cases. Winans v. The N.Y. and Erie R. Co., 62 U.S. (21 How.) 88 (1859); Congress and Empire Spring Co. v. Edgar, 99 U.S. 645 (1879).

Even though the patent application in this case involves the relatively new and rapidly developing computer art in which few Patent Office Examiners have relevant working experience, petitioner does not dispute that the Examiner may be qualified to raise the threshold question of whether a patent specification complies with 35 U.S.C. §112, thus placing the burden of presenting evidence on the petitioner. However, if sufficiency of disclosure is a question of fact, once presented with evidence in the form of affidavits by those skilled in the art and, therefore, competent to attest to the level of ordinary skill in the art, the Patent Office Examiner must abide by this expert testimony in the absence of evidence to the contrary; if adequacy is a question of fact, the conclusions of experts are quite proper. The refusal of the Court below to decide in accordance with the only evidence presented in the record or

to specify that any contrary facts were being judicially noticed, denied petitioner his right to due process of law.

IV. The Patent Office Must Apply to a Reissue Application the Same Standards for Measuring Sufficiency of Disclosure as it Applied to the Original Application.

35 U.S.C. §251 was enacted for the purpose of allowing a patentee to reissue his original patent in a corrected form. The reissued patent expires on the same date as the original patent.

The underlying reason for the reissue was summed up by this Court in Grant v. Raymond, 31 U.S. (6 Pet.) 218, 243 (1832) as follows:

> ". . . The great object and intention of the (patent) act is to secure to the public the advantages to be derived from the discoveries of individuals, and the means it employs are the compensation made to those individuals for the time and labor devoted to these discoveries, by the exclusive right to make, use and sell, the things discovered for a limited time. That which gives complete effect to this object and intention, by employing the same means for the correction of inadvertent error

> which are directed in the first instance, cannot, we think be a departure from the spirit and character of the act."

The words of the statute are clearly intended to implement this policy. 35 U.S.C. §251 states that

> ". . . the Commissioner 'shall' on the surrender of such patent and the payment of the fee required by law, reissue the patent for the invention disclosed in the original patent . . .". (Emphasis added).

The statute further provides for examination of the reissue application in accordance with the provisions relating to examination of original applications.

In the present case, there was no new evidence for rejecting the specification - in fact, except for a few minor corrections not relevant here, the reissue specification was identical to the original specification. If the Patent Office had applied the same provisions relating to examination as applied to the original application, the specification would be found adequate. The Commissioner is not impliedly empowered under the statute to change his standards in examining a reissue application. Nor is he given a discretionary power to re-examine issues where there is no new evidence.

Moreover, the Commissioner, by changing his standards and rejecting the patent for inadequacy has in effect rendered the original patent (having

the same disclosure) a nullity. If the Patent Office had required additional material for adequate disclosure at the time the original application was pending, the applicant would gladly have submitted the material in the form of a continuation-in-part application. This could not be done at the time the reissue was filed because of statutory bars under 35 U.S.C.§102 (b). If the Patent Office is allowed to arbitrarily change its standards, the applicant will be denied due process. Other patentee's will be deterred from seeking correction through reissue. This is contrary to the spirit of the statute and the express language by which its policy is implemented.

CONCLUSION

For the foregoing reasons the Petition for Writ of Certiorari should be granted.

Dated: November 16, 1973

Respectfully submitted,

FOWLER, KNOBBE & MARTENS

James B. Bear
Don W. Martens

APPENDIX

DECISION AND OPINION OF THE COURT
OF CUSTOMS AND PATENT APPEALS

IN THE MATTER OF THE APPLICATION OF HAROLD W. DOYLE	October Term	1972
	Patent Appeal No.	9139
	Serial No.	18,727

August 30, 1973

MARKEY, Chief Judge

This appeal is from the decision of the Board of Appeals affirming the rejection of claims 1-8, 11-30, 32, 33 and 34, all the remaining claims, of appellant's application Serial No. 18,727, filed March 11, 1970, for reissue of Patent No. 3,391,392, issued July 2, 1968 on an application filed October 18, 1965, for "Method and Apparatus for Pattern Data Processing." We affirm.

The Invention

The invention relates to grading garment patterns and more particularly to a system that "automatically produces data for patterns of all the desired sizes from a single reference pattern." According to the application:

A reference garment pattern is digitized and with grading control data and digital data processing methods is converted into data indicative of additional size patterns. Digital computer means are provided for selectively changing the boundaries of the reference pattern according to predetermined grade instructions from grading control data to produce positional data indicative of the additional size patterns.

Figs. 1 and 2, reproduced below, illustrate, respectively, a reference pattern to be graded to provide corresponding patterns for additional sizes and "a schematic block diagram illustrating a principal aspect of the automatic grading method of the invention":

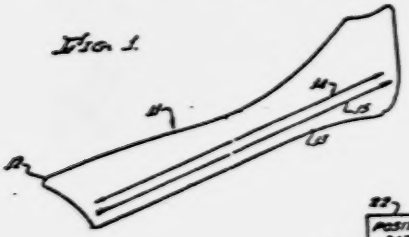


Fig. 1.

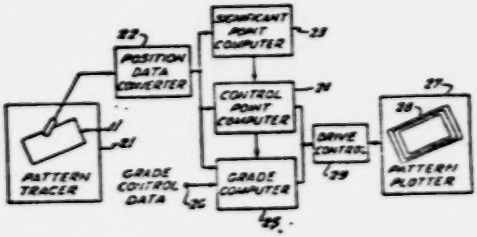


Fig. 2.

The pattern 11 may be a part of a dress pattern of a reference size such as 12 from which corresponding parts for a selected range of sizes such as 6, 8, 10, 14, 16 and 18 may be produced. The pattern 11 has various control points, such as point 12, which may be marked by notches and located at corners and other key positions of the pattern 11. The points are utilized in the invention as points from which dimensional changes predetermined by the designer are applied to locate corresponding offset points on the patterns of the additional sizes.

As to Fig. 2, the application states:

> [T]he reference pattern 11 of Fig. 1 is initially placed on a pattern tracer 21 which is an automatic curve follower to be described later. The tracer 21 follows the boundary of the pattern 11 including the control points 12 and 13 and provides positional incremental data based on X and Y coordinate axes to a position data converter 22. The incremental data is converted into Cartesian point data by the data converter 22 according to predetermined sequence recognition rules and, with the X-Y positional data from a significant point computer 23, is fed to a control point computer 24. The significant point computer 23 selects the

Cartesian positional data from converter 22 according to maximum and minimum deviation criteria relative to the X and Y coordinate axes to provide significant point positional data indicative of the reference pattern. The control point computer 24, responsive to the Cartesian positional data from the converter 22 and the significant point data from the computer 23, computes control points. A grade computer 25 computes offset intermediate point positional data for the selected additional size patterns in accordance with the computed intermediate points for the reference pattern 11. The graded positional data from the control point computer 24 are fed to a drive control 29 which drives a pattern plotter 27 to provide a graphical display of the additional size patterns 28.

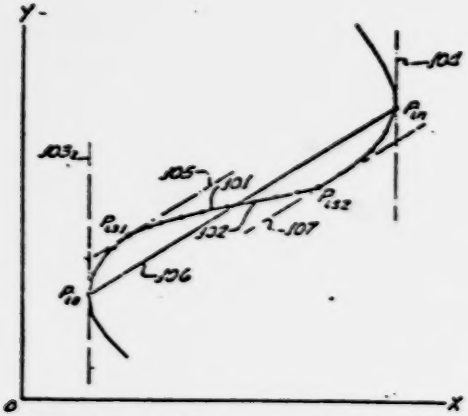
No programs for the computers are set forth in the application.

At the end of the specification, appellant states that the "preferred embodiment" which he shows and describes is "susceptible to changes in form and detail" and that:

> [A]lthough the use of an incremental plotter with an incremental pattern tracer particularly enhances the operation of the system, it would be well within the knowledge of those skilled in the art to utilize other forms of plotters and curve followers, including manual curve followers * * *.

The particular operation of pattern tracer 21 and position data converter 22 of Fig. 2 is irrelevant to the basis on which we determine the appeal. The adequacy of disclosure of the pattern plotter 27 is unquestioned.

The function of the significant point computer is disclosed with respect to Fig. 15:



SIGNIFICANT POINT COMPUTER GRAPH

FIG. 15.

The figure shows a portion 101 representative of the pattern 11 of Fig. 2. The input to the significant point computer 23 (Fig. 2) from the position data converter is a series of raw boundary data points such as 102 on line 101. The significant data computer analyzes these data points "to provide significant points such as illustrated in Fig. 15 wherein significant points P_{io} P_{is_1} P_{is_2} and P_{in} are shown." The primary significant points P_{io} and P_{in} are first established. Then the secondary points P_{is_1} and P_{is_2} are determined.

The control point computer determines, from raw boundary data from position converter 22 and significant point data from the computer 23, the location of control points represented on the pattern 11 by notches as indicated in Fig. 18:

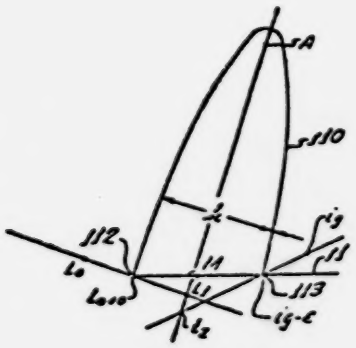


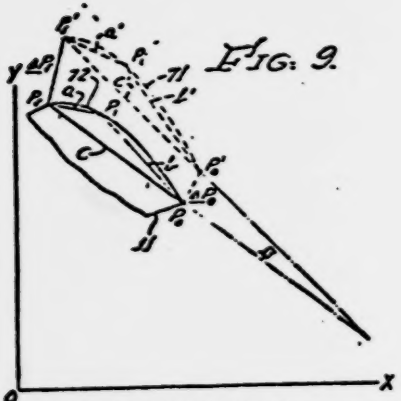
FIG. 18.

According to the application:

> In the beginning, a maximum spacing test is made in which two significant points are found which are within the maximum distance allowable (k_{max}). After two significant points are found within the k_{max} then an additional spacing test is conducted in which all points within the distance of the k_{max} are established. If three or more significant points are within the k_{max}, then a notch is tentatively designated and a further series of tests is conducted. A base line test is conducted to find two end points 112 and 113 which represent the base line of the notch, from which is determined the midpoint M. An apex test finds the apex A, after which a line is determined from M to A as illustrated * * *.

Some further discussion of the control point computer operation is given with respect to figures of the drawing designated "flow charts."

The function of the grade computer is best discussed in connection with Fig. 9:



There P_o and P_f represent control points on the pattern 11 established by the control point computer and P_o' and P_f' are offset points established by the grade computer by means of offset vectors ΔP_o and ΔP_f which constitute grade control data furnished thereto at 26 in Fig. 2. P_i represents an arbitrary intermediate point on the pattern and P_i' a corresponding intermediate offset point on the graded pattern determined by the grade computer on the basis of the triangles P_o P_i P_f and P_o' P_i' P_f' being similar and their corresponding sides proportional. The computer determines a plurality of such intermediate offset points between P_o' and P_f' to define the graded pattern.

Claims 7 and 14 are illustrative:

7. A system for grading a reference pattern to produce additional size patterns comprising:

a pattern tracer for converting the reference pattern boundary into incremental positional data based on X and Y coordinate axes;

a position data converter responsive to said tracer for converting said positional data into Cartesian point data;

a significant point computer responsive to said Cartesian point data and slope criteria relative to said X and Y coordinate axes to produce significant point data;

a control point computer responsive to said significant point data for computing control points; and

a grade computer responsive to said control points, predetermined pattern control data corresponding to said additional size patterns, and said Cartesian point data for intermediate points for computing offset control points for offset intermediate points for said additional size patterns.

14. A system for selectively changing the boundary of a reference pattern having a plurality of control points thereon to produce patterns of other sizes according to size data determining the adjustment factor of individual ones of the control points, not all of the control points being adjusted by the same factor, said system comprising:

means for converting the reference pattern boundary and control points into positional data;

means responsive to said positional data and to said size data for computing additional positional data for the adjusted control points and for the boundary of an additional size pattern graded between the adjusted control points; and

means responsive to said additional positional data for displaying the boundary of said additional size pattern.

There are other apparatus claims with scope variations and a number of method claims corresponding generally in scope to the apparatus claims.

The Rejection

The Examiner held that the position data converter 22 as well as the computers 23, 24 and 25 were inadequately disclosed, pointing specifically to deficiencies in the description of each. He also pointed out a number of apparent errors in the descriptions of their operation. As to the latter, appellant responded by offering amendments to the application. The Examiner objected to certain of the amendments as new matter because "[n]o adequate basis exists in the original application for making these proposed changes."1/ Appellant then cancelled the amendments but the record does not show that he either challenged or explained the alleged errors. On the broad question of inadequacy, appellant submitted affidavits of Burger, Steele and Owen and portions of two depositions taken of adverse witnesses, Mantey and Sutton, in an infringement suit on the patent sought to be reissued.

1/ The Examiner further stated that "[s]ince the description of these figures [incorporating the alleged errors] has been one of making only a general statement of the purpose of the tests being conducted, no basis exists in the description from which these changes can be deduced."

The additional rejection of Claims 2, 4, 7, 11 and 22 was based on references therein to providing or selecting significant point data according to or responsive to "slope criteria." The Examiner considered those recitations inaccurate because no determination of slope of any line segment is made.

The board sustained both of these rejections. It found the affidavits and depositions "unconvincing of the level of skill in the art to deal with the problem of modifying a computer to achieve the results specified by appellant which the Examiner has challenged."

OPINION

Although appellant asserts that all of the elements of his disclosed automatic system are adequately disclosed, his argument in large part is that he has provided an adequate disclosure of what he considers an alternative form. He relies for the alternative form on the statement in his application, supra, that "it would be well within the knowledge of those skilled in the art to utilize other forms of plotters and curve followers, including manual curve followers." By argument he supplements the quoted statement, advising that the term "manual" curve follower is really a misnomer because it would be more aptly

described as a semi-automatic curve follower. Appellant states:

> Such prior art "manual" curve followers comprise a bed on which the paper with the curve to be digitized is placed. An operator superimposes a stylus over a point on the curve and operates a record button. A position data converter forming part of the tracer is connected to the stylus. Operation of the record button causes the position data converter to output the Cartesian Point coordinates of the stylus location to a key punch or tape unit which records the positional data. The operator then moves the stylus to another point on the curve and repeats the operation until sufficient points have been digitized to represent the curve. Points on the curve of a different character (such as control points) would be digitized in a manner to identify their special character, for example on a separate pass around the curve. Such operation was well within the skill of the art prior to October 1965. Such a device clearly is a "means for converting the reference pattern boundary and control points into positional data" as required by the claims.

Because of the asserted alternative disclosure, appellant's position is that, as to the broader claims, the adequacy of the disclosure of the position data converter, the significant point computer and the control point computer need not be considered. However, we find that the application provides no suggestion whatever of making sequential tracings of the pattern in order to separately digitize intermediate points and control points. In particular, there is no suggestion in the application that automatic identification of control points, provided by means including the significant point computer 23 and control point computer 24, be sacrificed and such action would be inconsistent with the emphasis placed on automatic operation throughout the specification. The most that can be found to be suggested by the brief reference to use of a manual curve follower in the specification is that it be substituted for the automatic curve follower in the described preferred embodiment with the elimination of the position data converter 22[2/] but retaining the significant point and control point computers to distinguish the control points. Hence

---

2/ We give appellant the benefit of an assumption that the "manual" curve follower which is used will provide an output of digital data representing Cartesian coordinates.

even the broad claims which do not specify the significant point and control point computers require an adequate disclosure of them as part of the elements covered by the broad means recitations.

As to the third named computer of the disclosed apparatus, the grade computer 25, appellant does not deny its essentiality to the invention.

We agree with the Examiner and the Board that the disclosure of the three computers 23, 24, and 25 is not sufficient to enable any person skilled in the art to make and use the invention. 35 USC 112. The showing of these computers amounts essentially to functionally labeled rectangles with a description of the result to be provided by the apparatus they represent. It is true that appellant sets out what he describes as algorithms, and in some instances, "flow charts" associated with these computers. However, these too are more in the form of indications of the results desired than any description of how the computers are operated to provide those results and appellant has not challenged the Examiner's assertion of specific error in relation to the algorithms and flow charts.

Turning to appellant's evidence, the Mantey and Sutton evidence is in the form of excerpts from their depositions. The excerpts at most are related only to equations 24 and 25 which appellant's

specification sets forth in connection with the operation of his grading computer. In their affidavits, Steele and Burger, experts in the data processing art, express the opinion that a typical computer programmer "supplied with no other significant information than what is disclosed in [appellant's] patent, could have prepared a program to grade patterns using the technique disclosed in said patent." Owen, a computer programmer, asserted:

> That, having been supplied with no other significant information than what is disclosed in [appellant's] patent, she did prepare a program to grade patterns using the grading algorithm disclosed in said patent during the time between November, 1964 and August, 1965. That said program was prepared for a general purpose digital computer, using conventional programming technique, and was used to grade garment patterns.

We do not consider the excerpts from the depositions, taken out of context and without revealing fully the point of the questioning, as establishing the adequacy of the disclosure of the grading process in appellant's specification. The excerpts contain no

information whatever as to the significant point computer and control point computer. Hence they are wholly inadequate to demonstrate the presence of disclosure sufficient to teach one skilled in the art how to make and use the system even if, arguendo, they were considered of some significance relative to the grade computer operation.

As the Board observed, the Burger and Steele affidavits merely express opinions in the form of conclusions without any facts on which the conclusions are based. They thus differ critically from the affidavits found adequate in In re Naquin, 55 CCPA 1428, 398 F.2d 863, 158 USPQ 137 (1968). The Naquin affidavits included assertions that "the average computer programmer" was familiar with subroutines "for multiplication, integration, addition, peak picking, running integration, subtraction * * * ," which obviously were the very operations which the court considered to be necessary to execute Naquin's invention. In this case, affiants' assertions are directed to operations which obviously are different from mere known mathematical processes such as "integration, addition, etc." Rather the operations require comparison of various points on the pattern to determine such matters as where the curve

between the digitized points is such that the tangent line thereto will change from one quadrant to another to reveal a significant point and to distinguish the notches at the control points from other significant points.

Owen does not reveal what information was available to her in preparing the program and thus the statement that she was supplied with no other significant information than what is disclosed in the patent is a conclusion or opinion lacking factual support. There is no basis for presuming that her information was limited to the patent application itself. Her program was prepared before the application was filed. In light of appellant's having based his principal argument on an alternative form of invention utilizing a "manual" curve follower in a manner which we hold was not disclosed in the application, Owen's reference to "a program" using "the grading algorithm disclosed in said patent" may well have been based on a similar interpretation of the application. Thus, the Owen affidavit does not cover anything more than a program for the grade computer 25, leaving the programming of the significant point computer 23 and control point computer 24 outside its scope.

Appellant's principal argument seems to be that the unpublished decision of the Board of Appeals in Ex parte Bernhart, Appeal No. 633-90 (1966), from which was taken the appeal that resulted in In re Bernhart, 57 CCPA 737, 417 F.2d 1395, 163 USPQ 611 (1969),[3/] controls here. The Board decision there reversed a rejection for inadequate disclosure of a graphic type reproduction system for making planar representations wherein data representing a three dimensional object on a selected plane surface was determined for plotting by an automatic plotting machine. In that case, data representing the points on the three dimensional object and other instructions, including which points were or were not connected to other points, was predetermined and already produced on punched cards or magnetic tape from a manuscript. The Board noted that the mathematical equations for converting this data to two dimensional form were set out and regarded the operation of a computer used to make the transformations as involving no more than commonplace operations using conventional program instructions.

3/ The record of the Bernhart case in the court contains the Board decision as does appellant's brief in this appeal.

In the present case, the significant point computer and critical point computer must calculate the data representing the characteristics of the reference pattern 11 and the record does not show the operations to be performed by them to be conventional or apparent to persons skilled in the art from appellant's disclosure.

Summarizing, the situation here is that the Examiner advanced a reasonable basis for questioning the adequacy of the disclosure and it was incumbent on appellant to rebut that challenge. See In re Ghiron, 58 CCPA 1207, 442 F.2d 985, 169 USPQ 723 (1971). More specifically, the applicant had the burden of supplying adequate information from which the Examiner, as well as the Board and this Court, could base a finding of whether the Examiner's challenge was correct. Ordinarily that requires factual support as to what would be required or what was actually done in carrying out the invention, material peculiarly within the power of the applicant to provide. Despite assertions of Owen that she prepared a program to grade patterns "using the grading algorithm disclosed in [the] patent," appellant has not provided information additional to that challenged by the Examiner as to how the grading was done. The opinions supplied by the evidence that was introduced are clearly not indicative that the Examiner erred.

Appellant further argues that the fact that a patent was allowed him on the original application means that the question of sufficiency of disclosure has been determined in his favor by the Patent Office and that a policy of res judicata should bar a contrary holding here. However, we agree with the Board that the statutory provision for reissue of patents, 35 USC 251, by its third paragraph, dictates that the provisions applicable to applications for patents, including section 112, are applicable to reissue applications also.

For the foregoing reasons, the 112 rejection based on inadequate disclosure is sustained.

The reference in claim 7, supra, to the significant point computer as "responsive to * * * slope criteria relative to said X and Y coordinate axes" is exemplary of the subject matter in claims 2, 4, 7, 11 and 22 which constituted the basis of their rejection as misdescriptive and failing to distinctly point out appellant's invention (35 USC 112, second paragraph). The Board noted that the term "slope" has the precise mathematical meaning of the tangent of the angle between a line and the x-axis and that appellant is concerned only with change in sign of the tangent.

It thus considered it misleading to refer to "slope criteria." Appellant's response is that the claims do not require determination of the absolute slope. That seems to be a contention that the expression is not inaccurate. Irrespective of whether the term is inaccurate, it plainly falls short of meeting the requirement of "particularly pointing out and distinctly claiming" appellant's invention. Thus, the additional rejection of claims 2, 4, 7, 11 and 22 will also be sustained.

The decision of the Board is affirmed.

AFFIRMED

Rich, J., concurs in the result.

OPINION AND DECISION OF BOARD OF APPEALS, JUNE 30, 1972.

Before Andrews, Strader and Bennett, Examiners-in-Chief.

This is an appeal from the final rejection of claims 1 through 8, 11 through 30, 32, 33 and 34 which are all the claims remaining in the application.

Claims 7 and 14 have been selected by appellant as typical of the issues presented in this appeal and are reproduced herewith as follows:

7. A system for grading a reference pattern to produce additional size patterns comprising:

a pattern tracer for converting the reference pattern boundary into incremental positional date based on X and Y coordinate axes;

a position data converter responsive to said tracer for converting said positional data into Cartesian point data;

a significant point computer responsive to said Cartesian point data and slope criteria relative to said X and Y coordinate axes to produce significant point data;

a control point computer responsive to said significant point data for computing control points; and

a grade computer responsive to said control points, predetermined pattern control data corresponding to said additional size patterns, and said Cartesian point data for intermediate points for computing offset control points and offset intermediate points for said additional size patterns.

14. A system for selectively changing the boundary of a reference pattern having a plurality of control

points thereon to produce patterns of other sizes according to size data determining the adjustment factor of individual ones of the control points, not all of the control points being adjusted by the same factor, said system comprising:

means for converting the reference pattern boundary and control points into positional data;

means responsive to said positional data and to said size data for computing additional positional data for the adjusted control points and for the boundary of an additional size pattern graded between the adjusted control points; and

means responsive to said additional positional data for displaying the boundary of said additional size pattern.

The instant application is for reissue of the following patent:

Doyle	3,391,392	July 2, 1968

The subject matter of the application is an apparatus which automatically accepts as input a pictorial representation of a garment pattern in its "reference" size, such as size 12, and delivers as its output a pictorial representation of the pattern in all wanted "graded" sizes. The appealed claims are directed both to such apparatus and to the method requiring the use of such apparatus.

Appellant's apparatus is asserted to include a pattern tracer which, when the tracing head thereof is positioned anywhere adjacent the outline of the reference pattern, will cause the tracing head to seek out the outline of the reference pattern and thereafter to follow along the outline of the pattern while simultaneously generating output data indicative of the digital values

of the X and Y coordinates of a succession of positions of the tracing head.

This data is supplied to digital computing apparatus that must function to (1) store this data, (2) analyze this data in such a manner as to discriminate between a "control" point in the form of a notch in the outline, and any other abrupt change in the direction of the outline, (3) add to the coordinates of such control points the previously stored X and Y offsets necessary to define the corresponding control points of the wanted size of the graded pattern and thereafter compute the intermediate points between control points of the graded pattern by a mathematical proportioning algorithm.

The data thus evolved in the computing apparatus is then supplied to a plotter which graphically displays the outline of the size-graded pattern.

Claims 1 through 8, 11 through 30, 32, 33 and 34 stand rejected under 35 U.S.C. 112, first paragraph, as based on inadequate disclosure in the specification and claims 2, 4, 7, 11, and 22 stand further rejected under 35 U.S.C. 112, second paragraph, as misdescriptive and, hence, fail to distinctly point out appellant's invention.

Appellant asserts that the rejection under 35 U.S.C. 112, first paragraph, is barred under the doctrine of "*res judicata*" because the issue of adequacy of disclosure is the same here as it was at the granting of the original patent and so must be similarly resolved.

The examiner relies on 35 U.S.C. 251, third paragraph, to hold that the statutory provisions, applicable to applications for patents, including Section 112, must also be applicable to reissue applications.

We agree with the examiner but also point out that Section 251 has been held to be remedial in purpose so that one seeking equitable relief for past errors that rendered his original patent defective should not be heard to deny such relief to the public occasioned by some past oversight on the part of the Patent Office that likewise would render the patent defective.

We find "*res judicata*" not applicable here.

The thrust of the examiner's holding of inadequate disclosure under the first paragraph of Section 112 is directed to appellant's "position data converter" 22, as depcited in Figures 12 through 14 of the drawing, and to the computing units 23, 24 and 25. In general, these devices deal with the problem of converting data obtained from the reference pattern tracer and processing this data so as to direct the movements of the pattern grading plotter.

Appellant contends that the specific details of appellant's position data converter and computing apparatus are not necessary to an adequate disclosure of his invention because his claims are broad and do not include such details. In other words, the disclosure is commensurate with the breadth of claiming.

We do not agree with appellant's contention that the details of the data converter and computing apparatus are not essential to a disclosure of how to make and use appellant's invention as claimed because a completely automated apparatus for size-grading patterns is called for by each of the claims on appeal. These claims do not admit of carrying out of any of the steps of the data processing by manual or "semi-automatic" means, such as locating the "control" points of the reference pattern by visual action, as was sug-

gested in appellant's brief, because the operator of the machine is not a part of the apparatus nor can his actions respond to a claimed "means" for performing a function.

> "It is quite clear that claim 10 in typical means-plus-function language as expressly permitted by the third paragraph of 35 U.S.C. 112, does not encompass the human being as the 'means' or any part thereof." *In re* Prater et al., 56 CCPA 1381, 415 F.2d 1393, 866 OG 1034, 162 USPQ 541 (551, 552).

Hence, the "means for converting the reference pattern boundary into positional data" as well as the other "means" called for by claim 1, for example, exclude any manual supplement to the automatic processing in those areas of appellant's apparatus that the examiner asserts were not adequately disclosed.

Nor do we agree with appellant's contention that broad claims do not require an enabling disclosure of details of his apparatus merely because some of the claims do not specify such details. Where the disclosure of a patent application is no more detailed than the broad statement of the function or result expressed in the claims there is no compliance with Section 112 of the statute. *In re* Arbeit et al., 41 CCPA 719, 206 F.2d 947, 1953 CD 409, 677 OG 843, 99 USPQ 123 (131).

> "In the instant case, the descriptions given in appellants' specification are no more definite than the functional statements in the claims, and the latter are not sufficient to meet the requirements of the act." [35 U.S.C. 112]

Accordingly, the rejection of the appealed claims on the ground of inadequate disclosure must stand or fall

on the sufficiency of the original specification and drawings to enable a person of ordinary skill to make and use the apparatus 22 for converting the reference pattern boundary into positional data and the significant point, the control point and the grade computers 23, 24 and 25.

The examiner has pointed out in detail in the answer and in prior actions incorporated therein wherein he found the instant disclosure erroneous and incomplete. In general, the inadequacy is centered about the apparatus required to detect a V-notch in the reference pattern outline which serves as a control point that is the sole basis for locating the significant and control points of each size-graded patten to be derived from the reference pattern.

Since the data is processed digitally, it is self-evident that there must be disclosed an apparatus that derives precise digital values of the X and Y coordinates of the control points of the reference pattern, otherwise, the apparatus could not digitally add thereto the offset values to obtain the X and Y coordinates of the control points of the graded pattern to be derived. Appellant's comments on page 9 of Appendix AA to his brief to the effect that the details of how his apparatus is to recognize the control points is of no moment because they are not claimed and are not a part of his invention, ignores the essentiality of this part of the apparatus to carry out the claimed operation.

A general purpose computer is merely an assembly of non-functioning parts until it is supplied with an operative program that instucts the computer how to proceed in every possible situation during each stage of a computation. Clearly the identification of a known

computer together with a listing of the program instructions required to make the computer function in a manner to carry out the required operations would be an adequate, although complex, disclosure of the apparatus.

Appellant has not disclosed such a program of instructions but, instead, purports to describe in the specification and illustrate in the drawing that which he characterizes as "algorithms" that would enable a person skilled in the art to prepare a program that would convert a selected computer so as to carry out the operations necessary to generate digital data from the outline of the reference pattern. This data would be of such character that when supplied to a plotter would cause the latter to draw the graded pattern. Appellant relies on that portion of the unpublished board's decision in *In re* Bernhart et al., 57 CCPA 737, 417 F.2d 1395, 874 OG 352, 163 USPQ 611, in which the board reversed a rejection for inadequate disclosure based on the proposition that disclosed mathematical equations would enable a computer programmer to prepare a program that would direct the computer to process data in conformity with the equations.

In our view the facts of the instant appeal are far different from those in Bernhart et al. because there the algorithm was precisely stated in terms of an arithmetic equation that could be translated directly to a computer program merely by reference to the programmers manual listing the operating instructions for the particular computer. Such manuals conventionally list the instructions that cause the computer to carry out the basic arithmetic processing steps, such as additionl, subtraction, multiplication and division. This would be analogous to appellant's solution of his equation 24

and 25 on page 12 of the specification, which is that portion of appellant's disclosure that was not specifically challenged by the examiner.

It appears that appellant's arguments for the adequacy of the instant disclosure must be based on a much broader meaning of the term "algorithm" than the original mathematical sense used in the Bernhart et al. decision. As we construe that which appellant denominates as his "algorithm" amounts to little more than a statement of wanted results with no specification as to how one would select and sequence the wide variety of instructions that are the usual complement of general purpose computers.

Since the appellant's "algorithm" is not couched in terms of a programmer's manual, some degree of ingenuity would be required of anyone who would seek to duplicate the results specified by appellant in his specification. The degree of ingenuity required and the skill of the routineer programmer are facts to be established in every particular case and here must be arrived at from the record before us.

Appellant relies, at pages 12, 13 and 14 of the brief, on the Mantey and Sutton depositions and the Burger, Steele and Owen affidavits to establish the level of skill in the art of programming general purpose computers.

We find these depositions and affidavits unconvincing of the level of skill in the art to deal with the problem of modifying a computer to achieve the results specified by appellant which the examiner has challenged.

The Mantey and Sutton depositions were responsive to specific interrogatories as to the programming of the mathematical equations 24 and 25 or the propor-

tioning operations depicted in Figures 8, 9 and 10 of the drawing and not to the conversion of position data or the location of control and reference points which were specifically challenged by the examiner.

The Burger and Steele affidavits merely express opinions that a "typical" computer programmer could have prepared a suitable program. These opinions are bare conclusions with no facts set forth on which these conclusions were based. This board has nothing for it to judge whether if such a program could have been arrived at by a "typical" programmer, the time and cost to one who would duplicate what appellant had done was within the legal limits of mere experimentation or routine trial and error.

The Owen affidavit avers that in a ten month period prior to the filing of the application for the original patent affiant prepared a computer program for grading patterns. Since the directions received by affiant were not asserted to be confined to the teachings of the application for the original patent, that application having been filed subsequent to affiant's programming of the computer. This board has no basis to judge whether the instructions received by affiant were no more detailed than those of the instant application and cannot accept affiant's unbased conclusions that they were not more detailed.

Also, since affiant specified no time period during which the programming was accomplished, it can be inferred that the ten months were required. A patent disclosure which purports to be the legal consideration for the grant of the patent monopoly would seem to be inadequate where the disclosure would only put the public in possession of the invention after ten months of programming. Expenditure of that time and effort

before the public could seek to improve on appellant's invention would not promote progress in the art of pattern grading nor fully inform the public at the expiration of the patent.

Further, the fact that appellant acknowledges that at the time he filed the original application he was in possession of the computer program essential to practice his invention but did not include disclosure of that program in his original application, warrants the conclusion that appellant withheld that portion of his invention so that the disclosure filed in the original patent application was not the best mode contemplated by him for carrying out his invention as required by the first paragraph of Section 112. Inventions requiring the programming of a computer but disclosed either without the program or without a means for expeditiously deriving the program that appellant found operative in his invention, affords the patentee the privilege of a monopoly on the result while withholding a disclosure of the complex means necessary to achieve that result. The Patent Office during the prosecution of the patent application and the public after the issuance of the patent are entitled to some degree of specificity of the program in order that the Patent Office might judge whether prior art references, such as those acknowledged in appellant's reissue declaration, are the equivalent of appellant's program and the public might judge whether a program developed independently of the patent was the equivalent of the patentee's program, as is explicitly required by the third paragraph of Section 112.

It is, of course, recognized that some computer programs may be exceedingly complex and of great bulk and may not be reduced to a mathematical symbology

but this is all the more reason that the public will need this disclosure in order that it may practice the invention with only a reasonable degree of experimentation and uncertainty. The fact that the heart of an invention is complex is no excuse for not complying with the statute nor does it rule out that sufficiently detailed symbology of the complex program might be adequate to allow a routineer programmer to duplicate the program of the inventor.

For the reasons stated above as well as for the reasons clearly stated by the examiner, we sustain the rejection of claims 1 through 8, 11 through 30, 32, 33 and 34 as based on inadequate disclosure.

The examiner contends that claims 2, 4, 7, 11 and 22 are misdescriptive under 35 U.S.C. 112, second paragraph, because the claims refer to the use of "slope criteria" which is not the case, since no slope determination is made.

Appellant asserts that his determination of the change in quadrant of a line implicitly is a use of slope criteria.

The term "slope" has the precise mathematical meaning of the tangent of the angle between a line and the X axis. Since appellant is concerned only with the change in sign of the tangent, not in the value of the tangent it is misleading to express the mere change in quadrant as "slope criteria." While a claim is before the Patent Office and available for amendment, there should be no valid reason for tolerating ambiguous or misdescriptive language in the claims.

The rejection of claims 2, 4, 7, 11 and 22 as misdescriptive is sustained.

Subsequent to the hearing, appellant offered certified copies of excerpts from the depositions referred to in his brief.

The copies are accepted by the board to perfect the record before it.

In summary, the rejection of claims 1 through 8, 11 through 30, 32, 33 and 34 under 35 U.S.C. 112, paragraph 1, is sustained and the rejection of claims 2, 4, 7, 11 and 22 under 35 U.S.C. 112, second paragraph, is sustained.

The decision of the examiner is affirmed.

AFFIRMED

/s/ D. D. Andrews
Examiner-in Chief
/s/ F. H. Straher
Examiner-in-Chief
/s/ R. D. Bennett
Examiner-in-Chief
BOARD OF APPEALS

Affidavit of Owen, March 11, 1971.

State of New York, County of Schenectady—ss.

PATRICIA OWEN, the undersigned, being duly sworn, deposes and says:

That she received a Bachelor of Arts degree in Mathematics from the University of New Hampshire in 1963.

That, prior to November, 1964, her only programming experience consisted of:

A) one course in FORTRAN Programming taken at the University of New Hampshire,

B) one course in Numerical Analysis taken at the University of New Hampshire in preparation for her Bachelor of Arts degree,

C) approximately four months experience programming computers for the General Electric Company in Schenectady, New York, and

D) approximately six weeks experience programming computers for California Computer Products, Inc. in Anaheim, California.

That she was employed as a Programmer by California Computer Products, Assignee of the patent for which reissue is sought, and assigned the task of computer programming for Harold W. Doyle during the period of November, 1964, through August, 1965.

That she has read the U. S. Patent No. 3,391,392 for "Method and Apparatus for Pattern Data Processing" and is familiar with it.

That, having been supplied with no other significant information than what is disclosed in that patent, she

did prepare a program to grade patterns using the grading algorithm disclosed in said patent during the time between November, 1964 and August, 1965. That said program was prepared for a general purpose digital computer, using conventional programming technique, and was used to grade garment patterns.

FURTHER, AFFIANT SAYETH NOT.

/s/ Patricia Owen
Patricia Owen

Sworn to and subscribed before me this 3rd day of March, 1971.

Doris M. Consaul, Notary Public, State of New York, Residing in Schenectady County. My Commission Expires March 30, 1972.

/s/ Doris M. Consaul
Notary Public

[Seal]

Affidavit of Steel, March 11, 1971.

State of California, County of Orange—ss.

Thomas B. Steel, Jr., the undersigned, being duly sworn, deposes and says,

That his educational and employment experience is stated in his resume, a copy of which is attached hereto, marked "Exhibit A," and made a part hereof by reference.

That during his experience in the digital computer field he has supervised a large number of computer programmers, through which supervision he has become acquainted with the level of ability expected of typical computer programmers.

That he has been retained as a digital computer expert by California Computer Products, Inc., assignee of the patent for which reissue is sought.

That he has read U. S. Patent No. 3,391,392, for "Method and Apparatus for Pattern Data Processing" and is familiar with it.

That, in his opinion, a typical computer programmer, in October, 1965, having been supplied with no other significant information than what is disclosed in the patent, could have prepared a program to grade patterns using the technique disclosed in said patent.

That the approach of said programming which would have been taken by said typical programmer would have been to prepare a program for a general purpose digital computer.

FURTHER, AFFIANT SAYETH NOT.

/s/ Thomas B. Steel, Jr.
Thomas B. Steel, Jr.

Sworn to and subscribed before me this 27th day of February, 1971.

/s/ STANLEY
Notary Public

[Seal]

EXHIBIT A.

Affidavit of Thomas B. Steele, Jr.

RESUME

Name: Thomas B. Steel, Jr.
Date of Birth: 1929 March 2
Place of Birth: Berkeley, California

Education:

1949 A.B. (Mathematics), University of California (Berkeley)

1951 M.A. (Mathematics), University of California (Berkeley)

Current Activities:

1970 Apr

At present, my professional hours are divided among independent consulting in the field of information processing, participation in certain scientific and professional activities, as noted, and writing on a variety of topics in information processing and related social and economic matters.

My principal consulting areas include software and programming language evaluation, selection, acquisition and installation, including contract preparation and monitoring for vendor acquired software, hardware systems selection and configuration, program system design and development, national and international standardization in information processing, and technological forecasting in information processing and related topics.

My clients range from a large financial institution concerned with the conversion of a nationwide telecommunications network feeding a central

computer complex in an on-line up-date and inquiry environment from second generation to third generation technology, to small, independent businesses exploring the suitability of mini-computer installations.

In most cases my direct interaction is with technical management and upper management, although in some instances I have provided informal seminars for junior personnel. In all areas the emphasis has been on the application of current technology in a manner compatible with developing and projected technology, using cost-effective approaches.

Previous Experience:

1950 Sep
1952 Apr

At the University of California at Berkeley I served as a Research Assistant, performing hand computations and some analytical work in a joint project of the Astronomy and Mathematics Departments concerned with the design and development of a method of representation of the positions of minor planets by the techniques of general perturbations.

1952 Apr
1955 Jun

As a naval officer with the rank LTJG (USNR) on active duty, I was responsible for the programming and operations of an IBM 701 installation at the National Security Agency in Washington, D.C. In this capacity I had technical and administrative responsibility for ten to twelve professionals, divided between military and civilian personnel.

1955 Jul
1957 Dec

At the RAND Corporation, Santa Monica, California, I had my first assignment as a mathematician on the Numerical Analysis Staff of the Mathematics Division. In this assignment I was engaged in research and development in computer programming, completing a simulation program for the IBM 704 running on the IBM 701—an enterprise commenced during my naval service, writing an assembly program for the IBM 704 designed to execute on the IBM 701, and participating in the development and implementation of PACT 1A, the first compiler written for the IBM 704. During this period I was a participant in the establishment of SHARE, the first computer user group.

My subsequent assignment was as a Technical Assistant to the Head of the 704 Programming Group in the System Development Division. In this capacity my principal concern was with the design and development of the System Training Program simulation programs for the IBM 704. These programs provided generated radar images of the North American airspace under various assumed pacific and hostile conditions as input to the USAF SAGE System for the purpose of training military operators.

1957 Dec
1970 Apr

With the establishment of the System Development Corporation as an independent outgrowth of RAND SDD, my duties remained essentially the same. Subsequently, I became a Section

Head in the 709 Programming Group with leadership of five professionals, a participant in the design and development of the SHARE Operating System (SOS) for the IBM 709, and the SDC representative to SHARE. During this period I was a participant in the USAF Winter Study Group (1960) which reviewed all Air Force Command and Control Systems, and was a member of the Data Processing and Display Panel of the USA Project Forecast (1963), which reviewed the impact of technology on Air Force problems for the 1965-1975 time span.

From 1963 to 1967, as Principal Scientists, I was Head of the Information Processing Research Staff, with the technical and administrative leadership of between twelve and twenty professionals. The research topics involved included programming language and operating system theory and construction, automatic translation of natural languages, biological systems simulation, artificial intelligence, general simulation theory, automata theory and formal logic. My personal research was in the areas of formal language description and the logic of interrogative sentences.

My penultimate responsibility at SDC was Head of the Languages and Support Systems Projects in the Applied Technology Division. This group was responsible for the incorporation of computer programs and systems developed outside the Corporation into the SDC Time Sharing System on the IBM 360/67. In this position I had technical and administrative leadership of between seven and fifteen professionals.

My final position at SDC was that of Principal Scientist and staff advisor to the Vice President, Commercial Systems Division. In this position I was responsible for advising Division management and personnel on matters of long range planning, with particular concern for the relationship between the potential requirements of the marketplace and projected technological development. Thus, I developed position papers and briefings on future product possibilities, considering marketability, technological feasibility and cost.

A second responsibility was that of advising management on hardware and software configurations appropriate to meet the corporate missions. Concomittantly, I was responsible for evaluations of competitive systems in terms of market impact and potential improvement in corporate products.

At the corporate level I was responsible for maintaining ties with the international marketplace and advising on the nature and timing of corporate entry into this area. Associated with this responsibility was the task of establishing and maintaining ties with the international technical community to provide broadly based technological input to corporate development with the emphasis on software technology and related subjects.

PROFESSIONAL ACTIVITIES

Professional Society Memberships:

American Association for the Advancement of Science

Association for Computing Machinery

Association for Symbolic Logic

Pi Mu Epsilon

Scientific Research Society of America

My current professional activities lie in three major areas: the software program of the International Federation for Information Processing (IFIP), the computers and information processing program of the American National Standards Institute (ANSI), and the management of SHARE, Inc., a principal users' group for the IBM System 360.

In pursuit of the first activity, I am the USA representative to the IFIP Technical Committee (Programming Languages) and Chairman of that Committee. Current concerns of this Committee include the ALGOL programming languages, formal language description, programming technology and data base technology. At present I am also Chairman of the subordinate Working Group 2.2 (Formal Language Description).

In pursuit of the second activity, I am the Chairman of the Standards Planning and Requirements Committee of the ANSI X3 Committee (Computers and Information Processing). This Committee is the focal point for and initiator of all proposals to develop American National Standards in the information processing area.

In pursuit of the third activity, I am a member of the Advisory Council to the Board of Directors of SHARE, Inc. as Chairman of the External Standards Committee and official Historian and Archivist of SHARE, Inc.

PROFESSIONAL ACTIVITY CHRONOLOGY

1955-1956—*Member*, Project for the Advancement of Coding Technique

1955—*Participant*, establishment of SHARE

1956—*Member*, Digital Computer Association Program Committee

1957—*Chairman*, SHARE Data Processing Committee

1957-1959—*Member*, SHARE 709 System Committee

1957-1959—*Member*, SHARE 709 Standards Committee

1957-1966—*Member*, SHARE UNCOL Committee, *Chairman* 1959-1966

1959-1961—*Member*, SHARE General Standards Committee

1960-1961—*Member*, ASA X3.4.2 Language Standards Committee

1961-1966—*Member*, SHARE Theory of Information Handling Committee, *Chairman* 1962-1966

1961—*Member*, SHARE Advanced Planning Advisory Board

1961-date—*Referee*, Journal of the Association for Computing Machinery

1962—*Reviewer*, 1962 Spring Joint Computer Conference

1962-1969—*Member*, USASI X3.4 Subcommittee (Committee Programming Languages), *Secretary*, 1963-1965, *Chairman*, 1965-1969

1962-1969—*Member*, USASI X3.4 Membership Committee

1962-date—*Charter member*, ACM SIGPLAN

1963—*Vice-chairman*, 1963 Fall Joint Computer Conference Program Committee

1963-1968—*Member*, USASI X3.4.6 Working Group (Glossary)

1963-1966—*Member*, ACM National Program Committee

1963-1968—*Member*, ACM SIGBDP, *Program Chairman*, 1963-1965

1963-1968—*Member*, Steering Committee of the AGM Standards Committee

1963-1968—*Secretariat*, Advisory Council of the ACM Standards Committee

1963-date—*Member*, ACM Standards Committee

1963-date—*USA representative*, IFIP TC-2 (Programming Languages), *Chairman*, 1969-date

1964—*Reviewer*, 1964 ACM National Conference

1964—*Member*, Organizing Committee for IFIP TC-2 Vienna Working Conference on Formal Language Description Languages

1964-1965—*Co-chairman*, ACM Working Conference on Programming Languages and Pragmatics

1964-1966—*Member*, SHARE Advanced Ssytems Objectives Committee

1965—*Co-chairman*, 1965 Fall Joint Computer Program Committee

1965—Member, Organizing Committee for SHARE-JUG Working Conference on Programming Languages

1965-1966—*Member*, SHARE Executive Board

1965-1966—*Member*, Organizing Committee for IFIP TC-2 Pisa Working Conference on Symbol Manipulation Languages

1965-date—*Reviewer*, Computing Reviews

1965-date—*SHARE representative*, Joint Users Group

1966—*Referee*, 1966 Fall Joint Computer Conference

1966-1967—*Member*, Organizing Committee for IFIP TC-2 Oslo Working Conference on Simulation Languages

1966-1967—*Member*, SHARE Advanced Planning Division

1966-date—*Member*, AFIPS International Relations Committee

1966-date—*Chairman*, IFIP TC-2 Working Group 2.2 (Formal Language Description)

1967-1968—*Referee*, 1968 Spring Joint Computer Conference

1967-1968—*Chairman*, SHARE Advanced Planning Committee

1967-1969—*Member*, USASI X3 System Advisory Committee

1967-1969—*Member*, PL/I Language Review Board

1967-date—*Member*, SHARE PL/I Project

1967-date—*Member*, ACM SICSAM

1968-1969—*Referee*, 1969 Spring Joint Computer Conference

1968-1969—*National ACM Lecturer*

1968-date—*Referee*, IEEE Transactions on Computers

1969-1970—*Member*, Organizing Committee for IFIP TC-2 Munich Working Conference on ALGOL 68 Implementation

1969-date—*Chairman*, ANSI X3 Standards Planning and Requirements Committee

1969-date—*Chairman*, SHARE External Standards Committee

1969-date—*SHARE Historian and Archivist*

1970—*Referee*, 1970 Fall Joint Computer Conference

1970-1971—*Referee*, IFIP Congress 71

AFFIDAVIT OF BURGER, MARCH 11, 1971.

State of California, County of Orange—ss.

LLOYD A. BURGER, the undersigned, being duly sworn, deposes and says,

That he received a Bachelor of Science Degree in Mathematics from California State Polytechnic College in 1961.

That he has worked in the digital computer field as a Programmer for eight (8) years, during which time he has become acquainted with the level of ability of typical computer programmers through his associations with such programmers.

That he is an associate of Harold W. Doyle in the employ of California Computer Products, Assignee of the patent for which reissue is sought, in the development of various computer hardware and software systems.

That he has read U. S. Patent No. 3,391,392, for "Method and Apparatus for Pattern Data Processing" and is familiar with it.

That, in his opinion, a typical computer programmer, in October 1965, having been supplied with no other significant information than what is disclosed in the patent, could have prepared a program to grade patterns using the technique disclosed in said patent.

That the approach to said programming which would have been taken by said typical programmer would have been to prepare a program for a general purpose digital computer.

FURTHER, AFFIANT SAYETH NOT.

/s/ Lloyd A. Burger
Lloyd A. Burger

Sworn to and subscribed before me this 9th day of March, 1971.

/s/ Dorothy J. Middleton
Notary Public

[Seal]

Excerpts From Depositions of Mantey and Sutton (in Civil Action Number 69-1763-AAH), Filed With Request for Substitution of Documents, March 31, 1972.

State of New York, County of New York—ss.

I, Anna Schmelzer, a notary public within and for the State of New York, do hereby certify that the attached pages are true copies of excerpts from a deposition of JOHN MANTEY, taken before me on Tuesday, December 1, 1970 in Civil Action No. 69-1763-AAH in the United States District Court for the Central District of California.

/s/ Anna Schmelzer

MANTEY

MR. MARTENS: This deposition is being taken in accordance with an amended notice of deposition previously filed with the court and a copy has previously been given to the reporter.

JOHN MANTEY, of 3980 Cadeo, Boulder, Colorado, having been first duly sworn, testified as follows:

EXAMINATION BY MR. MARTENS:

Q Dr. Mantey, would you tell us your name and address for the record, your residence address?

A John Mantey. I live at 3980 Cadeo, Boulder, Colorado.

Q You are employed by IBM, is that correct?

A Yes, that is right, I am employed by IBM.

Q International Business Machines, whom we will refer to as IBM during this deposition.

What is your educational background, starting with college.

A I have a bachelor of science degree, awarded in 1958 from the University of Notre Dame in electrical engineering. Also, I have a master of science degree from Notre Dame in 1960, also in electrical engineering, and a Ph.D. degree from Stanford University in electrical engineering, awarded in 1965.

Q Have you had any professional papers published?

A I have presented two or three oral papers at conferences; no publications.

Q What was the subject matter?

A This was digital filtering techniques primarily aimed at the seismic processing problems of the petroleum industry.

Q When were you first employed by IBM?

A I joined August 31, 1964.

Q Where were you employed before that?

A I was a full-time student at Stanford University.

Q Did you have any previous employment in the technical areas?

A I had six summer jobs, six different summers, while in school. I spent the summers in '56 and '57 with the General Electric Company in Erie, Pennsylvania; the summer of 1958 with the U. S. Naval Proving Grounds in Dahlgren, Virginia, the summers of 1959 and '60 with Bendix Corporation in South Bend, Indiana, and the summer of 1961 with IBM in San Jose.

Q Was any of this employment computer-related type work?

A Yes. Some of it was. Some of it was programming, in a small sense only. Most of it was more of an electrical engineering nature. The first two summers

was design of electric machinery. The summer in Dahlgren was somewhat computer peripheral, electronic parts primarily for some of the subcomponents within some of their systems. The two summers with Bendix were microwave theory, and the summer with IBM was on process control instrumentation and some of the problems related to that.

Q Going back to your formal education, how far did you go in mathematics in your duties? What were some of the more advanced courses?

A Differential equations, complex variables, a course in Notre Dame called math for engineers and scientists, which got into solution of partial differential equations. The course at Stanford on calculus of variations.

Q Other than the courses you took in obtaining your degrees, have you taken any courses relating to engineering, computers, programming? For instance, any IBM courses or any other courses?

A I have taken some courses within IBM, basic computer training course, which I took shortly after I joined the company, where they taught fundamentals of FORTRAN co-programming, cobalt autocodoer.

I am trying to think what other courses I may have had. I didn't take any formal ones at Stanford on programming.

Q Apparently when you began work at IBM you were still working on your doctorate at Stanford?

A No. I had completed all the requirements for a doctorate degree before I left Stanford, but had missed the graduation period, so the degree was not conferred until the next time they awarded them, which was January '65.

Q And when in 1964 did you begin work with IBM?

A August 31.

Q What was your programming experience at that time?

A At that time I had spent quite a little time at Stanford, working on a 1620 computer in which I had written a considerable number of programs in assembly language and a few in FORTRAN.

Q What types of problems were programmed?

A These were solving control systems problems, which was the topic of my thesis.

Q Are you familiar with the term "computer graphics?"

A Yes, as far as the general usage of it.

Q Did you have any experience in computer graphics prior to coming with IBM?

A No, I hadn't.

Q When you first came to IBM on August 31, 1964, what was your first assignment?

Q If you had wanted to, would there have been programmers in IBM that you could have explained the mathematics to, and they would have written the program?

A Yes.

Q Would that be a particular problem, to find a programmer to do that?

A No, not a particular program to find a programmer capable of doing it. We didn't have the funds and resources available at that time to go and get that one.

Q It was strictly a manpower problem?

A That is right. That is really in a sense why Jerry had come to me for programming assistance. He knew

I could write a program. He knew I could run the computer.

Q But once you have the equations and the algorithms the writing of the program is a job that can be carried out by a typical programmer.

A Yes.

Q Before I do this, let me do just one other thing I have forgotten. I have here a copy of the patent in suit. Have you read the patent in suit?

A Yes, I have.

Q When did you read that?

A About a year or so ago. I am assuming by that reference to the patent you are referring to the one, the Doyle—

Q The Doyle patent, yes. In column 12 of the patent in suit we find two equations which are indicated as equations 24 and 25.

Can you tell me if those equations, first, represent the same algorithm as incorporated in your program?

A It is my recollection, from reading it, and from what I am reminded of in seeing this here, that those two equations can be reduced down to the basic idea of a rotation, a translation and an elongation operation, and therefore that they are mathematically equivalent 24 and 25 to what is—

Q When you say they are mathematically equivalent, do you mean that one can be refuced to the other simply through mathematical relationships?

A That is correct.

Q That therefore they both say the same thing but say it in a different form?

A That is right. They both say the same thing to a mathematician.

Q To a mathematician they are identical?

A Yes, or similar.

Q You say "identical or similar?"

A The same mathematical meaning.

[X] Q Now, in the course of your interrogation, Mr. Martens asked you whether or not you could have explained the mathematics of your program to another programmer and have that other programmer then write your program.

Would the explanation of translation, rotation and scaling alone be enough to permit some other programmer to write a grading program?

A. No. I think one would have to know what the grader manually was attempting to accomplish, that you had to move a line segment that was described by its two in points in particular, which denoted what portion of the pattern you were concerned with moving at a particular time; that, basically, you would have to know you have a master pattern with a number of line segments whose beginning and ending points are defined by grade points and that you have a set of grade rules which coincide for each one of those grade points that then define the new end points for the next size.

I think that information and the description of what rotation, translation and elongation are and what they will do as far as solving that problem, that somebody could put together a program that would do this.

State of New York, County of New York—ss.

I, Anna Schmelzer, a notary public within and for the State of New York, do hereby certify that the attached pages are true copies of excerpts from a deposition of GERALD L. SUTTON, taken before me on Monday, January 23, 1971 in Civil Action No. 1763-AAH in the United States District Court for the Central District of California.

/s/ Anna Schmelzer

SUTTON

MR. MARTENS: This is a deposition taken in accordance with a notice of deposition, a copy of which has been previously given to the reporter.

GERALD L. SUTTON, of 3 Pat Drive, Poughkeepsie, New York, having been first duly sworn, testified as follows:

EXAMINATION BY MR. MARTENS:

Q Would you state your name for the record, please?

A Gerald L. Sutton.

Q And what is your home address?

A 3 Pat Drive, Poughkeepsie, New York.

Q And where are you employed?

A IBM Corporation in Poughkeepsie, New York.

Q And what is your position at IBM?

A My position is program administrator. You want a description of—

Q Fine.

A This is in customer executive education in Poughkeepsie.

Q Customer executive education? What types of customers? What field?

A The field is petroleum and chemical.

Q What is your education, starting with college?

A Bachelor's degree in electrical engineering in 1955, Worcester Polytechnic Institute. Master's degree in business, MBA, 1961, Rutgers University.

Q Did you work as an engineer following your graduation in 1955?

A Yes, I did. From 1955 to 1962 I worked for the Public Service Electric and Gas Company in New Jersey as an electrical engineer.

Q What kind of electrical engineering were you doing there?

A Most of the work that I did in that time frame related to computers. My last responsibility at Public Service was computer control of power plants.

Q What was your function with the computer? were you programming programs or what were you doing?

A No. On the last project I had responsibility for defining the functions of the computer. The programming was done by the vendor, who in that case was Westinghouse Electric. You might say project leader would probably be a functional description.

Q What kind of computer problems were you working with?

A The main application was the automatic startup and shutdown of team turbines and also the boilers and what-not associated with them.

Q And you were doing system design work? I am not sure—

A Yes, in effect; describing the fact that in the normal startup the turbine would have to rotate at 600 rpm for so many minutes or hours or what-have-you before the next phrase could be initiated, things like that.

Q So were you primarily working with the problem to which the computer work would be applied, or were you primarily working with applying the computer to the problem? In other words, were you defining the parameters that were to be controlled, or were you working toward controlling those parameters?

A Defining the parameters to be controlled.

Q Before your graduation in 1955, did you have any experience in the computer or computer related fields?

A No, I did not.

Q And you indicated you ended your employment there is 1962?

A That is correct.

Q Where were you employed after that?

A IBM Corporation, starting in either January or February 1962.

Q Prior to your employment with IBM had you done any computer programming?

A Yes, I had. When I was with Public Service I had programmed the IBM 650 and the programs were related to transformer ratings. The purpose was to see how much overload utility transformers could stand and some economic analysis.

Q What programming language were you working in?

A The programming at that time was one called BELL 2. It was developed by Bell Laboratories.

Q When you came to work with IBM what were your duties when you were first employed?

A I came to work from IBM as a professional hire for my background in electric utilities, and my first assignment was a joint study that we had with a large utility to try to define a total computer system for that utility hopefully covering all aspects of their business.

Q Let me just step back a minute to your education. What were some of the more advanced mathematics courses you took?

A I had about two years of math in college, going through differential equations, calculus.

Q Since your employment with IBM, have you attended any schools outside of the IBM organization?

A Schools, no.

Q Have you taken any courses from any other source other than schools?

A No, no courses. The reason I paused is attendance at technical meetings which were not necessarily IBM sponsored.

Q Within IBM have you taken any formal courses, training courses, or other IBM courses?

A Yes, quite a few.

Q Primarily in the computer field?

A All related in one way or another to computers; more recently, to education and educational techniques.

Q Starting at the beginning of your employment with IBM can you recall what those courses are?

A I think one of the first courses was the preannounced course on the 360, and that would be something during 1964.

Q The preannounced course on the 360, what would the content of that course be?

A The content of that course was the machine capabilities down to the instruction level, what the major instructions would do, and then the major functional components of the 360 system.

Q Have you taken any courses in FORTRAN?

A Not with IBM. When I was with Public Service I took a FORTRAN course.

Q Did you program with FORTRAN?

A I haven't. The last programming that I have done was in FORTRAN-like language, which we currently use today, PL1. But the amount of programming I have done in it is relatively nominal.

Q In 1964 and 1965, did you do any programming?

A No.

Q Were you able to read FORTRAN programs at that time?

A Well, when you say "read"—

Q Understand.

A I think so. It would obviously be a chore to look at a FORTRAN program and try to decide exactly what was going on. But I understood the major FORTRAN statements and the logic that would normally be used.

Q After you mentioned this one course on the 360, can you think of any other courses that you have taken with IBM?

A Following that one, the next course that I can recall was one of the graphic equipment. It was specifically called ALPINE. It was a prototype of the 2250 graphic display unit.

Q Tell me what is ALPINE?

A Well, ALPINE was a cathode ray tube display attached.

Q Going back to those discussions with Dr. Mantey which we talked about before, you talked about when he at some time told you about the use of point-by-point approach rather than an equation approach, that after discussing it with him it seemed like a simple approach to you.

A Yes.

Q Did it seem at that time from there on it would be simple to program that approach?

A Yes, very simple.

Q You wouldn't see any difficulties in working out the actual program to carry out that approach, any unusual difficulties?

A Not for Mantey or for someone else that had even a fraction of the math that he had.

Q So this would be, once you determined to use the point-by-point approach, that the programming from there on was routine?

A Yes. I would almost say trivial.